NiteDevil IR WDR Hi-Res Dome

These ***NiteDevil*** IR External Dome Cameras produce high quality images and work in very low light conditions down to 0.00001 Lux. They have many features including a solid aluminium waterproof base, 3D axis mounting inner bracket for wall mounting, a SONY SuperHad CCD II and a 2.8mm ~ 12mm varifocal lens. An OSD menu provides options for an exceptional Wide Dynamic Range option, High Sensitivity BLC, motion detection, privacy masking etc with option for RS485 menu control.

Models Available

CAM775 600TVL, 12VDC
CAM777 600TVL, 12VDC/24VAC

Electronic Features

- ✓ 1/3" SONY SUPER HAD CCD II
- ✓ Low illumination down to 0.00001 Lux
- ✓ Menu for Motion Detection & camera setup
- ✓ UnbeatableWide Dynamic Range Function.
- ✓ High Sensitivity Backlight Compensation
- ✓ High Resolution 600TVL (day) 650TVL (night)
- ✓ Digital Image Stabiliser for improved images
- ✓ 2D/3D Noise Reduction for night viewing

Mechanical Features

- ✓ Vandalproof & Weatherproof
- ✓ 3 Axis 3D built-in bracket
- ✓ Vari-focal 2.8 ~ 12mm Auto DC Iris Lens
- ✓ Aluminium housing with Smoked Cover
- ✓ 20 x IR 850nm Leds
- ✓ New Intelligent IR reduces IR white-out
- ✓ Anti-Colour Rolling option
- ✓ OSD menu with RS485 access

Mounting the Camera

The camera is for mounting on a wall, ceiling or outdoor facia board. Note that this camera has a 3D gimble allowing wall mounting or ceiling mounting. Note that fitting the screws into a ceiling will require support for the screws. N.B Please be aware that when refitting camera, the dome cowling does not obscure the lens.

Powering the Camera Note: Do not connect power to the RS485 connections

CAM775

The dome requires a 12V DC regulated power supply. Connections are not polarity sensitive so the positive and negative cables can be connected either way around. The camera is provided with a fly lead with a 2.1 jack connector for power. This camera draws a maximum of 330mA at 12v DC. Ensure that a regulated power supply is used and allow adequate headroom i.e only use a power supply with a minimum rating of 500mA.

CAM777

This dome is dual voltage. It will work on 12vDC or 24vAC. Connections are not polarity sensitive so therefore power connections can be either way round. The camera is provided with a fly lead with a 2.1 jack connector for power. This camera draws a maximum of 430mA at 12v DC or 210mA at 24vAC. Ensure that a regulated power supply is used if using 12vDC and allow adequate headroom i.e only use a power supply with a minimum rating of 600mA.

Connecting the camera to control equipment.

The dome camera comes with a fly lead for video out. To reduce installation time the video out lead is terminated into a male BNC connector. This allows the installer to connect the camera to control equipment via a female BNC-BNC lead. A special setup joystick controller is located on the side of the PCB board and this allows access to the OSD menu. A special socket is located to the right of the joystick controller to connect an optional test video monitor lead.

RS485 Connection

The RS485 connection allows access to the menu using a keyboard or DVR PTZ operation using an IRIS OPEN to open menu and select options using near, far, open and closed. Connect Green to Transmit + and Blue to Transmit -.

Special features

Higher resolution of 600TVL(Day)/650TVL(Night)

This unit has come up with an innovative way of increasing cubic resolution to more than 30% higher than that of conventional 600TVL cameras. It upgrades horizontal resolution to 600TVL and vertical resolution to 540TVL so that the cubic resolution becomes 324KTVL while conventional cameras provide only 240KTVL.

Unbeatable WDR Enhanced Performance

These cameras provide a very unique and far superior image scanning capability for defining details of differently contrasted areas compared with other conventional WDR cameras. They provide a special resolution to intelligently analyse the exposure ratio and to optimise it for an unbeatable clear image quality.

Super Low Light sensitivity

With its special technology, these cameras provide remarkable low light sensitivity of 0.00001Lux/F1.2 with Sens-up set at 512x which is at least 3 times better than conventional WDR cameras.

2D/3D Noise Reduction

This option reproduces noiseless images with 2D/3D filtering Noise Reduction Technology. 2D DNR helps preserve definition in the picture, whilst 3D DNR produces clear images with no ghost effect.

DIS (Digital Image Stabiliser)

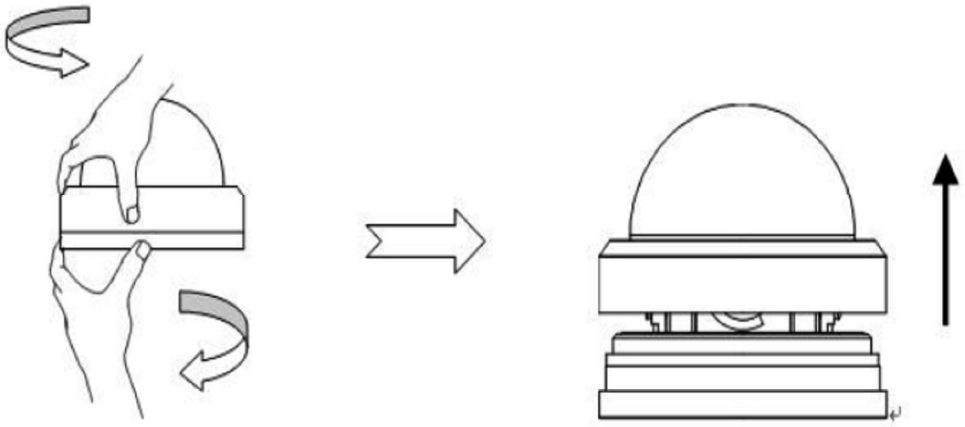
This technology reduces blurring associated with the motion of the subject by using pixels outside the border of the visible frame to provide a buffer for motion. Using Digital Image Stabiliser allows increased exposure time without blurring the image.

Anti-Colour Rolling

When operating a WDR camera close to fluorescent lighting, an effect called “colour rolling” can occur due to the lack of synchronisation between the camera and the neon light. New WDR technology tracks the light changes relative to the camera and adapts its own timing to sync with the fluorescent strobing, virtually eliminating the colour rolling effect.

Installation

Opening the Dome



Unscrew top metal retaining cover as shown above and lift off with dome cover.

The CAM775/777 has 3D axis allowing the camera to be fitted directly on a wall.
They have a 360° panning axis, 90° tilt axis and 180° rotation axis.

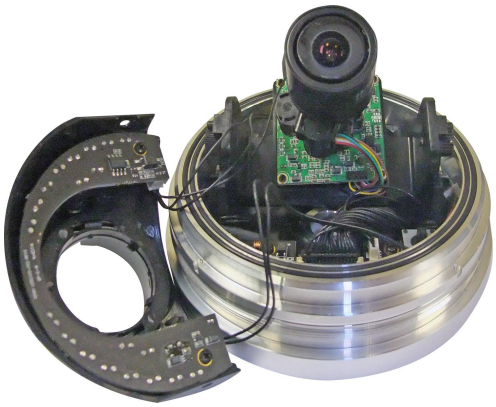
Panning: Hold the camera base and grip camera mechanism on both sides and turn it slowly to position required.

Tilt: Loosen the screws on both sides and tilt the lens to required position.

Rotation: Hold the camera board in one hand and rotate the lens to adjust picture.

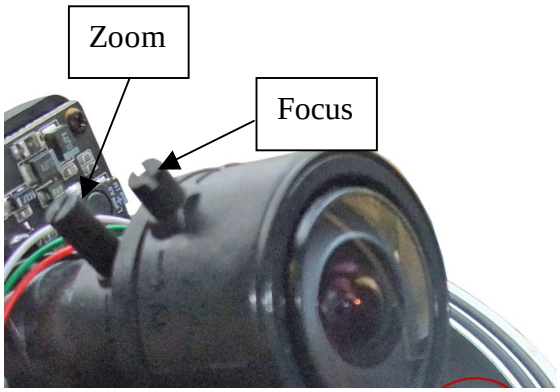
Varifocal Lens Adjustment

In order to adjust zoom and focus, you will need to remove the IR cover. This is easily unclipped.



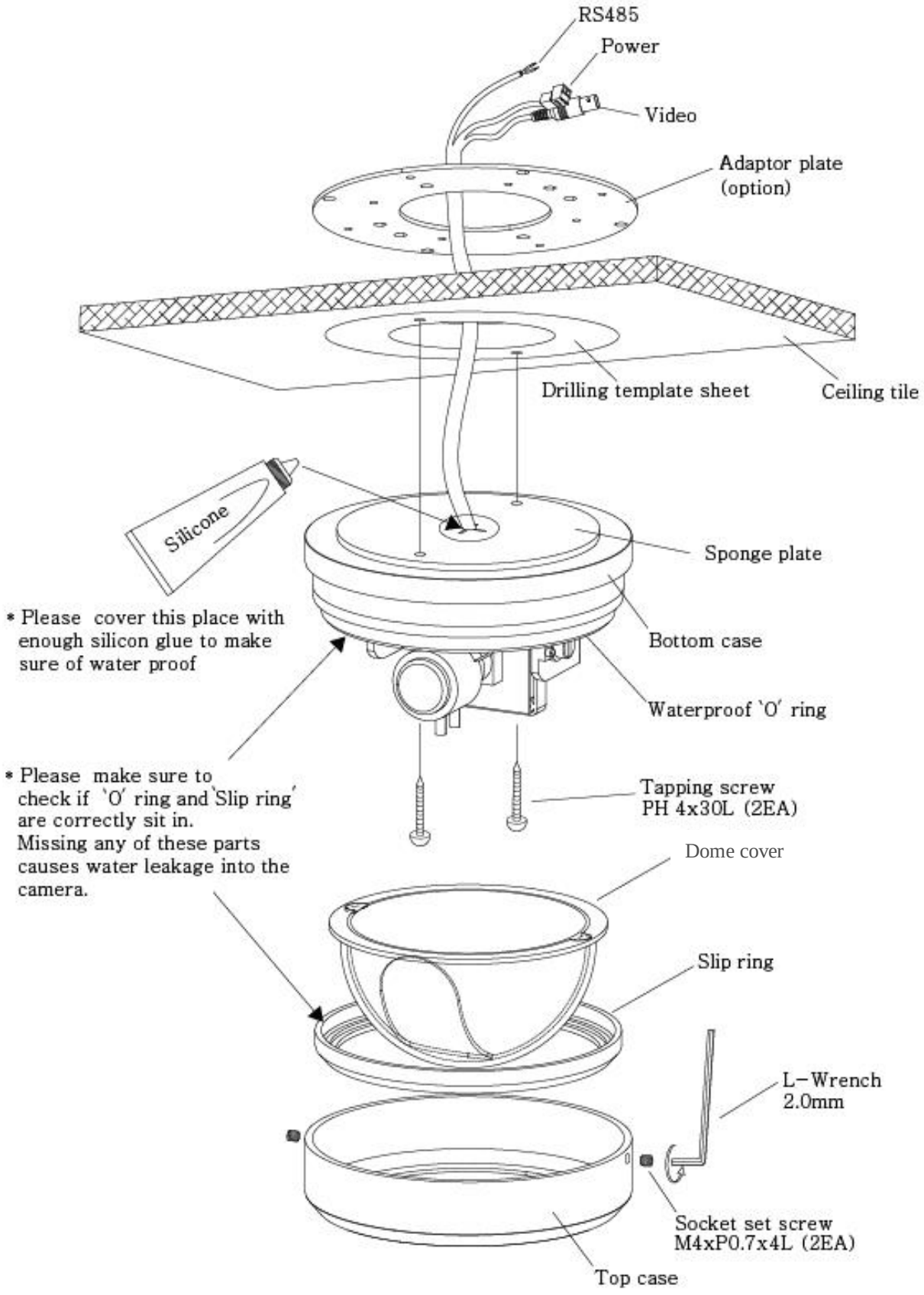
Now adjust the zoom and focus settings using the controls shown.

Loosen the controls using a small screwdriver. You may find it easier to set the Zoom control first and then adjust the Focus.



Retighten the Zoom and Focus controls.

Ceiling Mount



1. Place drilling template sheet onto a ceiling surface and drill holes through the marked positions.

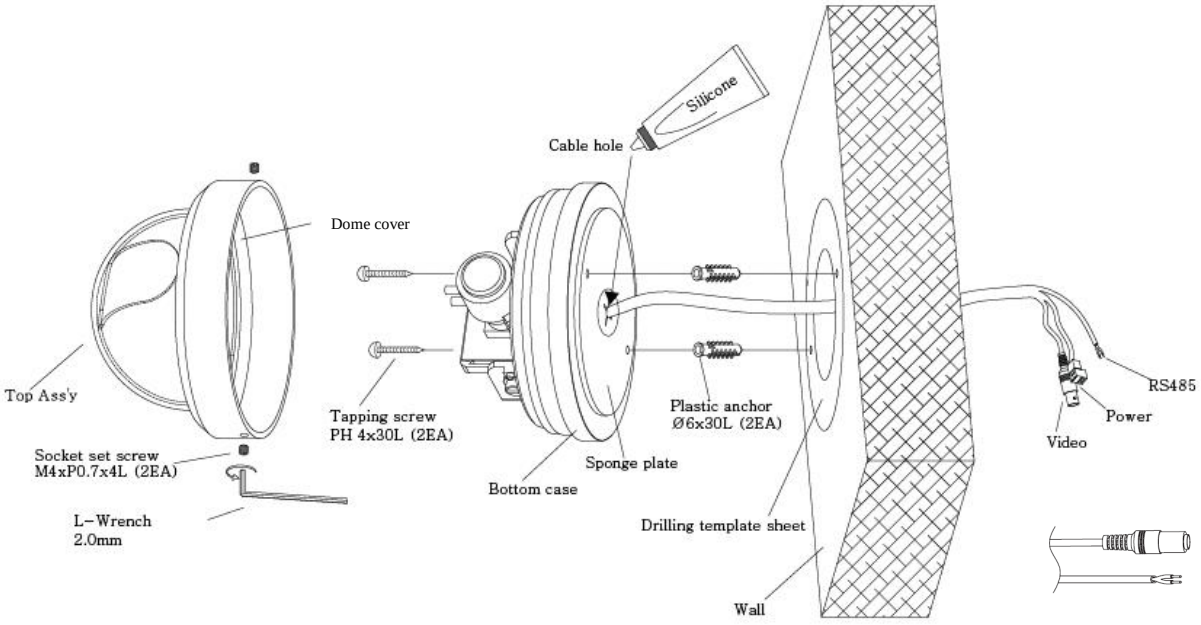
2. Put a sponge plate onto the bottom surface of the Dome. This prevents the camera from water or dust ingress. Please put sufficient silicon onto the cable hole to cover gaps between cable and sponge plate.

3. Fix the Dome base with tapping screws.

4. Set up camera functions.

5. Fix the dome cover /slip ring /top case with 'L' wrench and screws.

Wall Fitting



1) Place a drilling template sheet onto wall surface and drill holes through the marked positions.

2) Put a sponge plate onto the bottom surface of the Dome. This prevents the camera from water or dust ingress. Please put enough silicon onto the cable hole to cover gaps between cable and sponge plate.

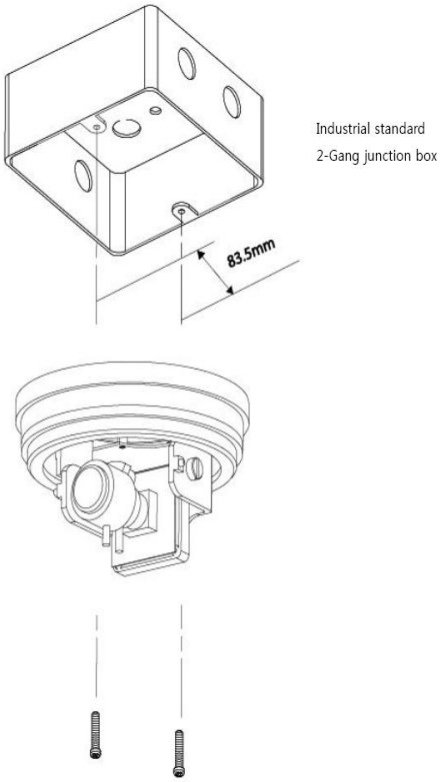
3) Fix the Dome base with Tapping screws.

4) Rotate the camera using 3-Axis mechanism in order to capture objects in upright position and setup function.

5) Fix the Dome cover with screws by using 'L' wrench supplied

Junction Box

The two holes in the dome base are compatible with the fixing holes in a standard 2 gang junction box.



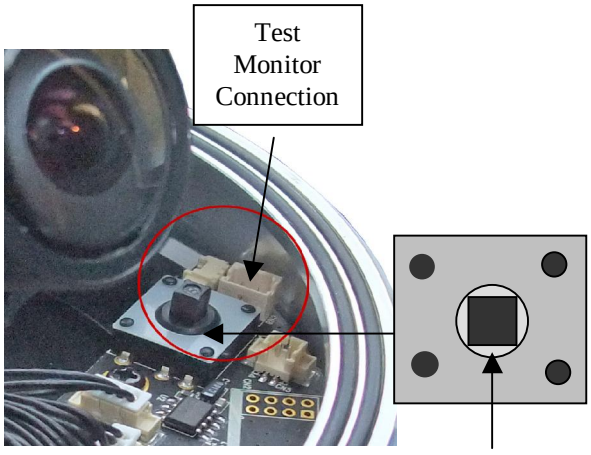
OSD (On Screen Display) Function

Remove the dome cover using the Allen key supplied to access the PCB board for entering the menu.

1. If you want to use the test monitor lead supplied, plug it into the Test Monitor Connection shown in diagram.
The spare short lead is a spare extension.

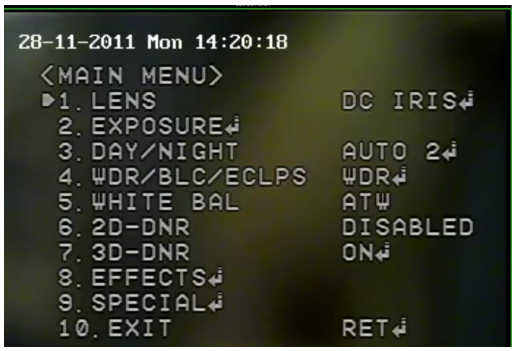
2. The OSD menu is accessed by first pressing down the centre button (SET Button).

3. Move button upwards to move down menu.
Move button downwards to move up menu
Move button right to move right
Move button left to move left
Press button down to Enter change



Menu Set Button Press Down

The following menu will be displayed on your monitor on pressing SET button (Joystick controller):



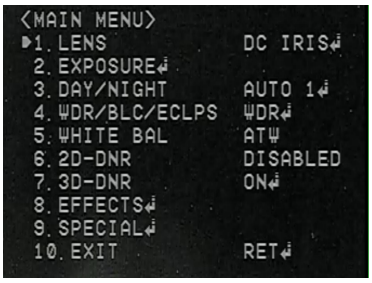
Menu Structure Functions

LENS	DC IRIS				
EXPOSURE	AGC	SHUTTER	SENS-UP	INITIAL	SAVE
DAY/ NIGHT	AUT01	AUT02	DAY	NIGHT	
WDR/BLC/ECLPS	OFF	WDR	BLC	ECLPS	
WHITEBAL	ATW	COL-ROLL	PUSH	MANUAL	
2D-DNR	DISABLED	OFF	LOW	MIDDLE	HIGH
3D-DNR	ON	OFF			
EFFECTS	DZOOM MODE	IMAGE FREEZE	D-EFFECT	CONTRAST	SHARPNESS
	COLOR ADJUST	TARGET CROSS	BAD PIXEL	INITIAL SET	SAVE
SPECIAL	CAM NAME	MOTION DET	PRIVACY MASK	LANGUAGE	STABILISER
	MONITOR TYPE	FACE REC	COMM SET	FACTORY RESET	SAVE
EXIT					

NOTE: All items with the ↵ icon allow you to access a submenu by pressing the SET button down. Any item showing - - - icon functionality is not available on this camera.

SPECIAL NOTE: When SENS-UP is off it will automatically deactivate 3-DNR.

1. LENS



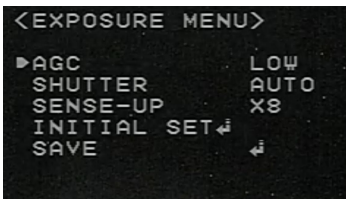
Select the lens and adjust the SETUP suitable for the type of lens.
◆ When DC lens is used. (※ Default)
1. Please select the lens mode as DC IRIS.
2. Press the menu button to enter the <DC IRIS MENU>.

BRIGHTNESS: adjust the brightness of screen when the environment is extremely bright or dark.
REACTION: Reaction speed of the shutter is adjustable. It is useful when the light condition of the environment keeps changing quickly.

3. Press **SAVE** to finish all settings and return to <MAIN MENU>

◆ When MANUAL lens is used.
1. Please change the lens mode to MANUAL.
2. Press the menu button for the <MANUAL IRIS MENU>.
BRIGHTNESS: same as above
REACTION: same as above

2. EXPOSURE



AGC (Auto Gain Control)
OFF: Deactivates the AGC function and SENS-UP.
LOW: Set gain control from 0 to 20dB. (※ Default)
MIDDLE: Set gain control from 0 to 30dB.
HIGH: Set gain control from 0 to 42dB.
※ The higher the gain level, the brighter the screen becomes while higher the noise level increases.

SHUTTER
AUTO: Shutter speed controlled automatically. (※ Default)
FLK: Please select FLK mode when flickering occurs on the screen, due to an imbalance between illumination and frequency.
FIXED : The shutter speed is controlled manually. You can select the speed from '1/50' to '1/90,000 sec. (PAL). You can select Digital Slow Shutter between x2 ~ x512. **(DSS)**

※ Please use **FIXED** mode only when the light level of the surveillance area is static all the time.

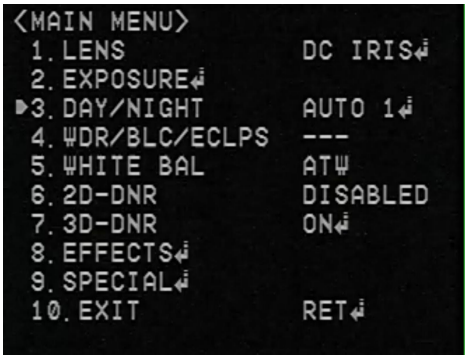
SENS-UP
Low light sensitivity is greatly improved with the use of this function and is adjustable from 2 to 512 times. This is the NightDevil function.
When SENS-UP level is higher, the picture becomes brighter while noise is increased at the same rate of SENS-UP.
ON : Adjustable SENS-UP level between x2 ~ x512.
OFF: SENS-UP is disabled.
※ Default setting is <x8>

Note: When the SHUTTER is set to MANUAL mode, SENS-UP does not operate.
When the AGC is set to OFF, SENS-UP does not operate.

INITIAL SET
Initialise all settings in EXPOSURE menu.

SAVE
Save settings.

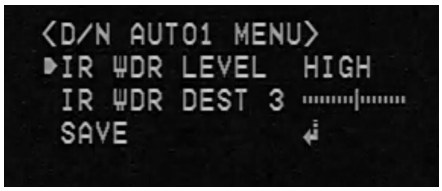
3. DAY / NIGHT



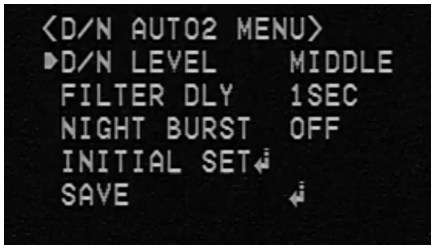
This menu is used to improve sensitivity and clarity of pictures in low light conditions.

DAY : The image is always displayed in colour.

NIGHT : The image is always displayed in black and white.



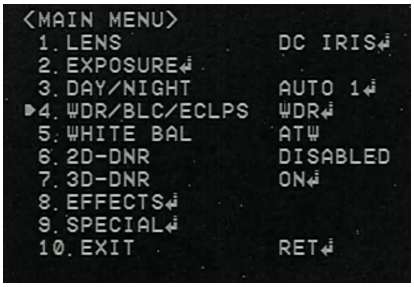
AUTO1: The image is automatically converted to B/W from Colour at 3 lux.
IR WDR LEVEL: Select Anti- IR saturation level - OFF/LOW/MIDDLE/HIGH
IR WDR ADJUST: Adjust the value in each of selected levels 0 ~ 6



AUTO2: The image is automatically converted to B/W from Colour at 3 lux.
D/N LEVEL: LOW/MIDDLE/HIGH
FILTER DLY: Select the duration time about changing the Day/Night mode. (1 SEC, 3 SEC, 5 SEC, 10 SEC, 15 SEC, 30 SEC, 60 SEC)
NIGHT BURST: Burst ON/OFF selectable.
INITIAL SET: Initialise all settings of AUTO2 menu.

NOTE: IR cameras should use AUT01 and non IR cameras should use AUT02.

4. WDR/BLC/ECLPS

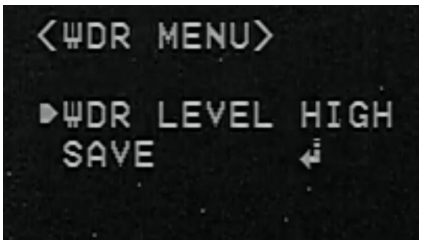


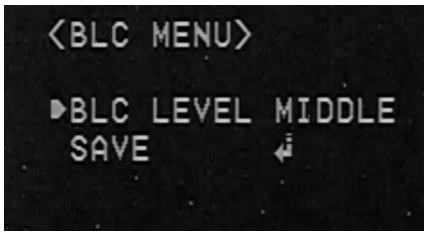
The image quality is greatly improved with the use of this mode when there is a strong backlight behind the object.

OFF : Deactivates the WDR function.

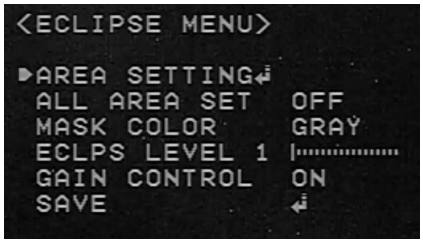
WDR: Camera scans both brightly lit backgrounds and shaded areas in extremely contrasted light situations. (LOW/MIDDLE/HIGH) settings available.

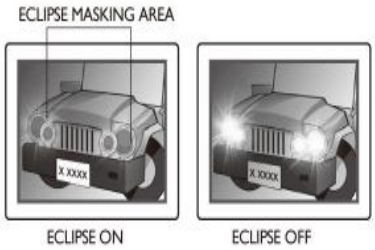
BLC: Enables a user to directly select a desired area from a picture and to view the area more clearly. (LOW/MIDDEL/HIGH) settings available.





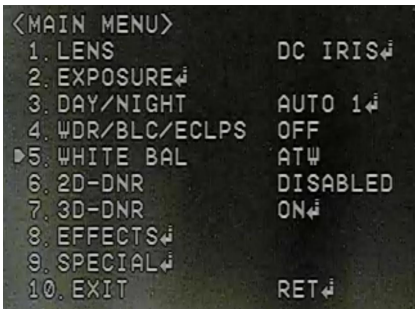
ECLIPSE:
This can mask the headlights to view a car license number plate more clearly. You can select masking colour. Adjust the ECLIPSE level with the GAIN CONTROL in OFF mode.





5. WHITE BAL (White Balance)

This is useful to optimize the white balance control under a certain artificial lighting area where a standard white balance condition is not suitable.



ATW (Auto Tracking White Balance)
This mode can be used within the colour temperature range of 1,500˚K~11,000˚K. (※ Default)

COL-ROLL (Anti color rolling mode)
Use it only when the rolling is severely shown.

MANUAL
Recommended for use when the lighting does not change. Select **INDOOR** or **OUTDOOR** mode.

PUSH (Push lock)
Use this when the White Balance has deviated due to electrical interference. Face the camera towards a white wall or white paper and press the menu button to set.

Note: White Balance may not work properly in the following conditions:-
1. When the colour range of the environment surrounding the subject is out of the control range (e.g. clear sky or sunset).
2. When the ambient illumination of the subject is dim.
3. If the camera is directed towards a fluorescent light or is installed in a place where illumination changes dramatically, the White Balance operation may become unstable.

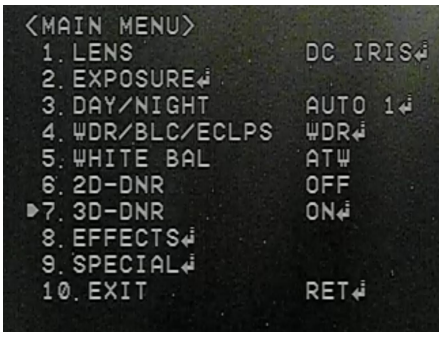
DIGITAL NOISE REDUCTION (Used with the NiteDevil feature)
This option reproduces noiseless images with 2D/3D filtering Noise Reduction Technology. 2D DNR helps preserve definition in the picture, whilst 3D DNR produces clear images with no ghost effect.

6. 2D-DNR (2D Noise Reduction)

LOW:
MIDDLE:
HIGH:
DISABLED: Deactivates 2D-DNR. Noise is not reduced.
OFF : Activates 2D-DNR(Level : 0). Noise is not reduced.

NOTE: Bad pixel detection function is only operational when 2D-DNR DISABLED is selected.

7. 3D-DNR (3D Noise Reduction)

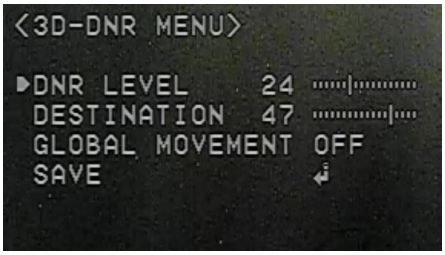


The background noise in the low light level decreases automatically as the level of gain changes.

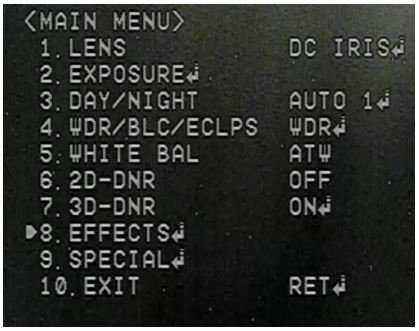
DNR LEVEL
Adjust the noise reduction level.

DESTINATION
Adjust the 3DNR gain.

GLOBAL MOVEMENT
Controls ghosting.



8. EFFECTS



D-ZOOM : You can use digital zoom.
ZOOM : x1 ~ x8.30
DZOOM PAN : -100 ~ 100
DZOOM TILT : -100 ~ 100

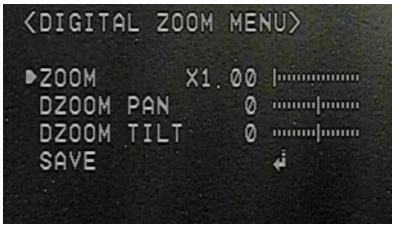
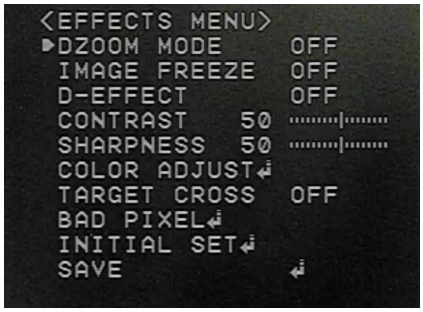
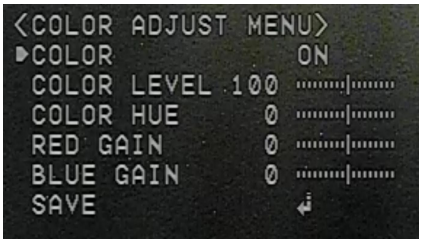


IMAGE FREEZE : You can view still or live image.

D-EFFECT
V-FLIP : Flips the picture vertically on the screen.
MIRROR : Flips the picture horizontally on the screen.
ROTATE : Rotates the picture on the screen.

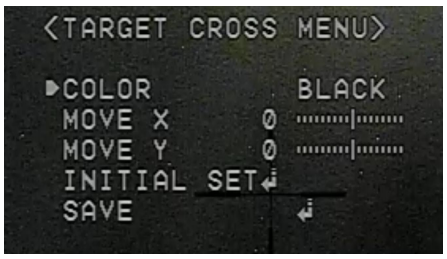


CONTRAST : 0 ~ 100
SHARPNESS : 0 ~ 100
COLOR ADJUST
COLOR : ON/OFF
COLOR LEVEL : 0 ~ 200
COLOR HUE : -180 ~ +180
RED GAIN : -100 ~ +100
BLUE GAIN : -100 ~ +100



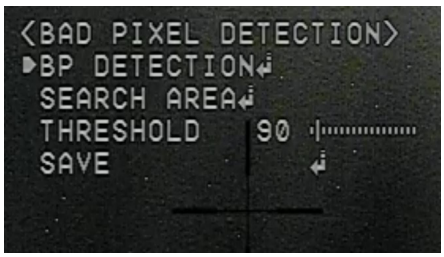
TARGET CROSS : Displays '┼' on the screen
COLOR : BLACK, GREY, WHITE, RED, GREEN, YELLOW
MOVE X : -100 ~ 100
MOVE Y: -100 ~ 100

INITIAL SET (Default setting for this option)
SAVE



The TARGET CROSS function when in operation will display '┼' but disappears if MOTION DETION function is 'ON'

BAD PIXEL: BAD PIXEL compensation
BP DETECTION: Make the screen completely black by covering the camera.
SEARCH AREA: X START / Y START / WIDTH / HEIGHT
THRESHOLD: 40 ~ 1024
SAVE



NOTE: Users may simply activate BP DETECTION and go directly to SAVE. Any bad pixels in full screen mode are automatically compensated.

INITIAL SET: Initialises all settings in EFFECTS menu. Target Cross and Bad Pixel modes are not initialised.

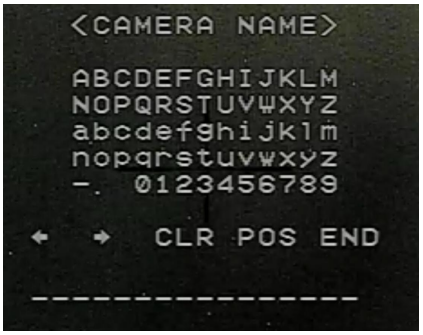
9. SPECIAL

CAM NAME (Camera Name)
Select 'CAM NAME' and switch option ON .

Note: If 'OFF' is selected, the CAM NAME does not appear on the monitor even if it has been input. Up to 15 characters for the name are available.

Please move the cursor to the letter required by using the UP and DOWN selections.

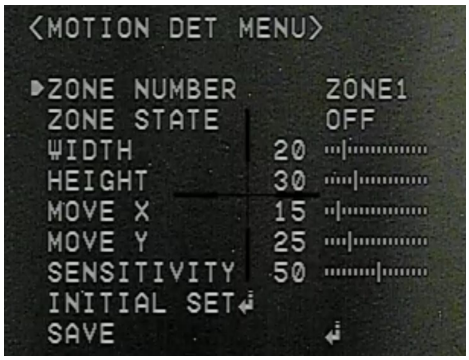
Set a name from characters A~Z / a~z / 0~9 by using the UP, DOWN, LEFT and RIGHT buttons.
Press the menu button to enter the character.
When the character is saved, the cursor moves to the next space.
Repeat to input name required.



Note:
If a wrong name has been input, press the menu button after moving the cursor to CLR, and all letters will be erased. If you want to correct a letter, please move the cursor to the arrow at the bottom left of the screen and press the menu button. Then position the cursor on the letter you wish to correct, and then move the cursor onto the letter you wish to choose and press the menu button. When a name has been chosen, please select a position for the name to display.

Please move the cursor onto 'POS' and then press the button.
The name will appear in the top left hand corner.
Please find the position you wish to display the name, by using the 4 directional selections, and then press the menu button. Then select END and press the menu button to complete CAM NAME input.

MOTION (Motion Detection)



You can set up to 8 motion detection areas and if movement is detected in an area the message: MOTION AT : <area number> is displayed.

ZONE NUMBER : Select up to 8 MD areas.
ZONE STATE : Switches zone on or off.
WIDTH : Determines the horizontal size.
HEIGHT : Determines the vertical size.
MOVE X : Determines the horizontal axis.
MOVE Y : Determines the vertical axis.
SENSITIVITY : Determines the motion detection sensitivity.
INITIAL SET : Initialise all settings in MOTION DET menu.
SAVE : Select this to save the MOTION menu setting and return to the SPECIAL menu.

PRIVACY (Privacy Masking)

MASK NUMBER : Select up to 8 PRIVACY areas.
MASK STATE : Switch Mask state on or off.
SENSITIVITY : Determines area color. You can select GREY, WHITE, RED, GREEN, BLUE, YELLOW, BLACK.
WIDTH : Determines the horizontal size.
HEIGHT : Determines the vertical size.
MOVE X : Determines the horizontal axis.
MOVE Y : Determines the vertical axis.
INITIAL SET : Initialise all PRIVACY masking settings.
SAVE : Select this to save the PRIVACY menu settings and return to the SPECIAL menu.

LANGUAGE
You can select the menu language from English, Korean, Russian, Spanish and French

STABILIZER (DIS)
This function mitigates any picture movement due to external factors such as wind.
Note: When the STABILIZER option is used there is a possibility of decreased resolution because this function uses digital zoom.
STABILIZER does not operate when background illumination is too low or picture contains a large expanse of black or white colour e.g white wall or sky.

MONITOR TYPE
This selects a different GAMMA setting.

CRT : GAMMA 0.45
LCD : GAMMA 1.0

FACE REC (Face Recognition)
In a situation where the internal illumination is dark but strong backlight exists behind the subject, the human face can become unrecognisable. This mode is suited for this particular problem.
FR BRIGHTNESS : 0 ~ 40
FR CONTRAST : 0 ~ 40
COLOR SAT : 0 ~ 200
CONTRAST : 0 ~ 100
OUTPUT LEVEL : -64 ~ +64
SHARPNESS : 0 ~ 100

COMM SET (Communication setting)
This function sets up the camera communication status when controlling the camera through an external control device such as DVR with PTZ functionality or RS485 keyboard. See further info below.

CAMERA ID
CAMERA ID : Determines the camera's identification number (between 0 and 255).

ID POSITION: Displays camera title on top left & right side of the screen.

BAUD RATE : You can select 4800/9600/19200/38400/57600 bps .

SAVE/REBOOT: Select this to **save the COMM SET** menu setting and return to the main screen.

PREVIOUS: Return to COMM SET menu.

RS485
This option allows setting of the menu using the RS485 connecting lead. If using an Alien DVR connect lead to T+ and T-. The camera RS485 lead Green = T+ and Blue = T-.

Set camera ID in camera to same as in DVR PTZ menu.

Ensure baud rates are set the same. The suggested baud rate = 4800.
Set the Protocol to PELCO-D in DVR.
Then
set Preset 95 in DVR to display menu. In the PTZ menu use the down arrow key to move to menu line and the right arrow key to alter value. Then use the IRIS+ button to enter.

Note: RS-485 cable : Please connect (-) first and then (+).
IF there is an RS-485 cable connection problem or any other problem that causes a message **'ERROR RS-485 Connection. Please Reconnect and Reboot'** to be displayed, then power off the camera and reboot.

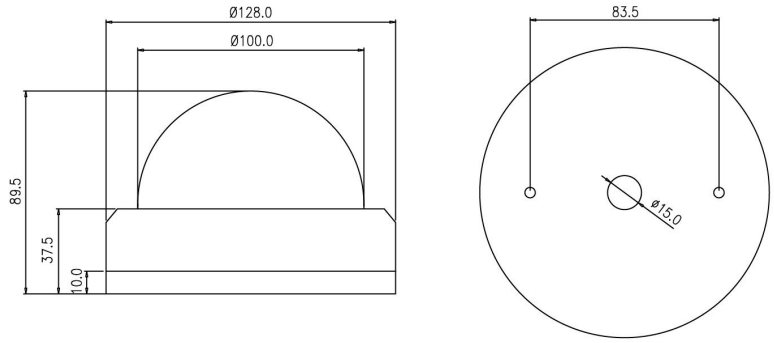
FACTORY RESET
Resets the camera setting to the factory defaults except <COMM SET> which is not initialised.

EXIT
Save all setting menus by pressing the menu button and then EXIT.

Troubleshooting

No screen display	* check power supply to camera * check video line * check brightness of Auto Iris Lens
Unclear video image	* check lens is clean * adjust monitor contrast
Day/Night menu fault	* Check if AGC switched off
Sens-Up menu fault	* Check if AGC switched off, check that Shutter menu is FLK or Manual
Colour incorrect	* Check White Balance setup

Dimensions



Technical Specifications

Function	Specification	
Model	**CAM775**	**CAM777**
Power Source	**12vDC 330mA**	**12vDC 430mA / 24vAC 180mA Dual Power**
Infra Red LED	N/A	20 x 850nm LEDs
Infra Red beam distance	N/A	30 metres
Imaging Sensor	1/3" SONY Super HAD CCD II	
Effective Pixels	PAL: 752(H) x 582(V)	
Signal System	PAL 625 lines	
Scanning system	2:1 Interface	
S/N Ratio	More than 52 dB (AGC Off)	
Horizontal Resolution	Horizontal: 600 TVL Colour / 650 TVL Black & White	
Video Output Level	1.0 v p~p (75Ω, composite)	
Lens	Built-in DC Iris Vari-focal Lens (2.8 ~ 12mm)	
Minimum Illumination	0.00001Lux (Sens-Up), 0.2 Lux (DSS OFF) at F1.2	
Sync System	Internal	
OSD	Built-in(Multi-language support – English/Korean/Russian/Spanish/French)	
Electronic Shutter Speed	Auto / Manual PAL: (1/50 sec ~ 1/100,000 sec) / NTSC: (1/60 sec ~ 1/100,000 sec)	
White Balance	ATW/COL-ROLL/PUSH/Manual 1,800K ~ 11,000K Auto	
Gamma Correction	0.45	
D-WDR	Indoor / Outdoor / Off	
Gain Control	6dB ~ 40dB, Low / Middle / High / Off	
Motion Detection	On/Off (8 zones)	
Mirror	V-Flip, Mirror, Rotate On/Off	
Face Recognition	Adjustable	
Day & Night	Auto / B&W / Colour	
Digital Zoom	On / Off (x1 ~ x8.30)	
Privacy Masking	On / Off (8 zone selectable)	
3DNR (digital noise reduction)	On / Off	
Sens-up	Selectable limit 2x ~ 512x	
Operational Temperature/Humidity	-10°C ~ +50°C / within 90% RH	
Dimensions	Base diameter 134mm x 91.7mm Height	
Weight	500g	520gm

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This symbol on the products and/or accompanying documents means that used electronic equipment must not be mixed with general household waste. For treatment, recovery and recycling please return this unit to your trade supplier or local designated collection point as defined by your local council.

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